WHAT IS CLAIMED IS:

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1. A dynamic structural dimple panel, comprising:

a dimple layer having a plurality of dimples extending from one side of the dimple layer, said dimples being spaced from one another and not touching, said dimples absorbing, storing, dissipating or distributing energy to make said dimple layer compliant; and

a reinforcing layer being configured to connect with the dimples of the dimple layer, said reinforcing layer connected to said dimple layer by said dimples, the compliance of said dimple layer accommodating loading of said panel to distribute stresses placed on the connection of said dimples, wherein at least one of the dimples has a passage therethrough.

2. A dynamic structural dimple panel, comprising:

a dimple layer having a plurality of dimples extending from one side of the dimple layer, said dimples being spaced from one another and not touching, said dimples absorbing, storing, dissipating or distributing energy to make said dimple layer compliant; and

a reinforcing layer being configured to connect with the dimples of the dimple layer, said reinforcing layer connected to said dimple layer by said dimples, the compliance of said dimple layer accommodating loading of said panel to distribute stresses placed on the connection of said dimples, wherein at least one of the dimples has a passage therethrough and wherein the portion of the dimple forming the passage is of a memory material which allows the size of the passage and/or the distance between the layers to be changed when the memory material undergoes a change in temperature.

3. A dynamic structural dimple panel, comprising:

a dimple layer having a plurality of dimples extending from one side of the dimple layer, said dimples being spaced from one another and not touching, said dimples absorbing, storing, dissipating or distributing energy to make said dimple layer compliant;

a reinforcing layer being configured to connect with the dimples of the dimple layer, said reinforcing layer connected to said dimple layer by said dimples, the compliance of said dimple layer accommodating loading of said panel to distribute stresses placed on the connection of said dimples; and

strand material routed through said layers to mechanically interlock the layers.

4. A dynamic structural dimple panel, comprising:

a dimple layer having a plurality of dimples extending from one side of the dimple layer, said dimples being spaced from one another and not touching, said dimples absorbing, storing, dissipating or distributing energy to make said dimple layer compliant; and

a reinforcing layer being configured to connect with the dimples of the dimple layer, said reinforcing layer connected to said dimple layer by said dimples, the compliance of said dimple layer accommodating loading of said panel to distribute stresses placed on the connection of said dimples, wherein at least one of the dimples has an opening therethrough and at least one of the reinforcing layers includes an extension extending through the opening.

5. A multilayer dimple panel, comprising:

a dimple layer having a plurality of first dimples extending from a first side thereof and a plurality of second dimples extending from a second side thereof, the first and second dimples being misaligned from one another and non-touching, said dimple layer being compliant;

a first reinforcing layer connected to said dimple layer; and

a second reinforcing layer connected to said dimple layer, the compliance of said dimple layer accommodating loading of said multilayer dimple panel to distribute stresses placed on the connection of said dimples, wherein at least one of the dimples has a passage therethrough.

6. A multilayer dimple panel, comprising:

a dimple layer having a plurality of first dimples extending from a first side thereof and a plurality of second dimples extending from a second side thereof, the first and second dimples being misaligned from one another and non-touching, said dimple layer being compliant;

a first reinforcing layer connected to said dimple layer; and

a second reinforcing layer connected to said dimple layer, the compliance of said dimple layer accommodating loading of said multilayer dimple panel to distribute stresses placed on the connection of said dimples, wherein at least one of the dimples has a passage therethrough wherein the portion of the dimple forming the passage is of a memory material which allows the size of the passage and/or the distance between the layers to be changed when the memory material undergoes a change in temperature.

7. A multilayer dimple panel, comprising:

a dimple layer having a plurality of first dimples extending from a first side thereof and a plurality of second dimples extending from a second side thereof, the first and second dimples being misaligned from one another and non-touching, said dimple layer being compliant;

a first reinforcing layer connected to said dimple layer; [and]

a second reinforcing layer connected to said dimple layer, the compliance of said dimple layer accommodating loading of said multilayer dimple panel to distribute stresses placed on the connection of said dimples; and

strand material routed through said layers to mechanically interlock the layers.

8. A multilayer dimple panel, comprising:

a dimple layer having a plurality of first dimples extending from a first side thereof and a plurality of second dimples extending from a second side thereof, the first and second dimples being misaligned from one another and non-touching, said dimple layer being compliant;

a first reinforcing layer connected to said dimple layer; and

a second reinforcing layer connected to said dimple layer, the compliance of said dimple layer accommodating loading of said multilayer dimple panel to distribute stresses placed on the connection of said dimples, wherein at least one of the dimples has an opening therethrough and at least one of the reinforcing layers includes an extension extending through the opening.

9. A dynamic structural dimple panel comprising:

a dimple layer having spaced apart dimples extending from a first side and a second side, the dimples being spaced to form a dimple layer region where the dimple layer region is curved relative to the dimples; and

a reinforcing layer being configured to connect with the dimples of the dimple layer, the reinforcing layer connected to the dimple layer by the dimples, the curved dimple layer region of the dimple layer providing compliance of the dimple layer accommodating loading of the panel to distribute stresses placed on the connection of the dimples.

10. A dynamic structural dimple panel as recited in claim 9, wherein the curved region interconnects the dimples.

11. A dynamic structural dimple panel as recited in claim 9, wherein at least one of the dimples has a passage therethrough.

12. A dynamic structural dimple panel comprising:

a dimple layer having a plurality of dimples extending from a first side and a second side, the plurality of dimples being spaced apart to form a dimple layer region

on the dimple layer where the dimple layer region includes a plurality of corrugations in order to provide dynamic compliance for the dimple layer; and

a reinforcing layer being configured to connect with the dimples of the dimple layer, the reinforcing layer connected to the dimple layer by the dimples, the compliance of the dimple layer accommodating loading of the panel to distribute stresses placed on the connection of the dimples.

13. A dynamic structural dimple panel as recited in claim 12, wherein the plurality of corrugations interconnect the plurality of dimples.

14. A dynamic structural dimple panel as recited in claim 12, wherein at least one of the dimples has a passage therethrough.